1998 YANKTON SIOUX TRIBE
UNIFIED WATERSHED ASSESSMENT
Prepared by Cliff Johnson, Water Quality Resources Manager
September 10, 1998

BACKGROUND

The Yankton Sioux Tribe is located within two identified watersheds: Fort Randall Reservoir and Lewis & Clark Lake. In assessing the watersheds, an Assessment Matrix was prepared using the attached Vulnerability Index (attachment 1).

In order to start on the Assessment information was gathered which reflects the quality of water within the reservations watersheds.

WATERSHED CATEGORY DETERMINATION

Based upon the data analyzed, the vulnerability index and criteria, the Yankton Sioux Tribe categorizes the two identified watersheds as "Category II - Watersheds Meetings Goals, Including Those Needing Action to Sustain Water Quality".

REFERENCES

- State 303(d) List information
- NRCS Maps
- Tribal Water Quality Monitoring Data
- The Index of Watershed Indicators, U.S. EPA, Office of Water (EPA-841-R-97-101)
- USGS Water Quality Data Book
- National Bureau of Census
- Classification of Wetlands and Deepwater Habitats of the United States, U.S. DOL, 12/79 (FWS/OBS-79/31)
- South Dakota State Watershed Assessment documents and map

DEVELOPMENT TEAM

The development team included representatives from the Yankton Sioux Tribe, NRCS, and EPA. Representatives were Cliff Johnson, Water Resources Manager, Yankton Sioux Tribe; Carl Lucero and Thedis Crowe, NRCS Regional Tribal Liaison; Tom Weber, NRCS/EPA Watershed Team; Lee Roberts (Tribal Program Manager), Pam Dougherty (EP&R), John Peters (SEE), Toni Ott (TMDL Program), EPA Region 8.

LAND USE AFFECTING WATER QUALITY

Land uses on the Yankton Sioux Reservation include rangeland, crop land (center pivot irrigation and pesticides application), rural home sites, livestock operations (e.g., feeder cattle operations, small hog confinement areas) , and recreation.

ASSESSMENT MATRIX
UNIFIED WATERSHED ASSESSMENT
YANKTON SIOUX TRIBE
SEPTEMBER 10, 1998

Watershed and Subunit:	Fort Randall Reservoir	Lewis and Clark Lake
Hydroponic Unit Code:	10140101	10170101
Data Source:	Tribal Water Quality Program	
Population Change:	40 percent increase	
Watershed Health Category:	Category II	Category II

ASSESSMENT PARAMETERS	Fort Randall Reservoir	Lewis and Clark Lake
Ambient Water Quality	4	4
Pollutant Loading (PL) Discharges Above Permit Limits	4	8
Agriculture Runoff Potential	2	5
Sediment potential	5	5
Wetlands Losses	4	4
Hydro-Modification Impacts	5	5
Use Restrictions	1	1
Drinking Water (DW) Use Restrictions	7	3
CUMULATIVE SCORE	32	35
AVERAGE SCORE	4.000	4.375

Attachment 1

UNIFIED WATERSHED ASSESSMENT
VULNERABILITY INDEX

RATING & CRITERIA

Vulnerability Level	Numeric Rating	Criteria for Numeric Rating Assignment
UNDETERMINED	0	Data sufficiency threshold not met
LOW	1	Sensitive Aquatic/Pristine Waters
	2	Water bodies meet all Water Quality Goals or designated uses
	3	Low impairment levels identified
MODERATE	4	Moderately high impairment levels identified
	5	High impairment levels identified
	6	Threat to aquatic organisms or Water Quality goals
HIGH	7	Threat to public health - water contact
	8	Threat to public health - ingestion
	9	Threat to public health - water supply

Assessment Matrix Tribe: Yankton-Souix Date: September 10,1998

Unified Watershed Assessment

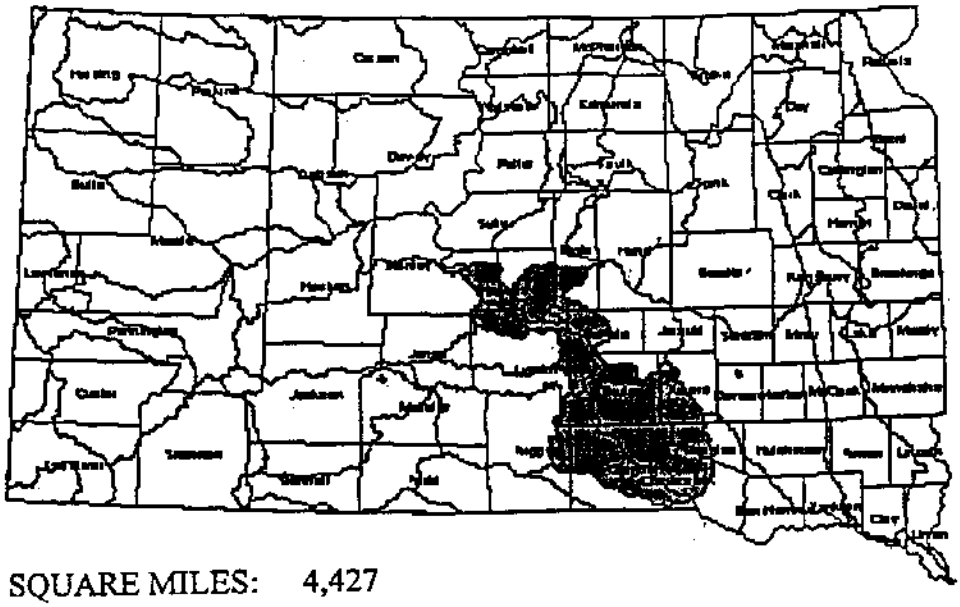
Watershed	Hydrologic Unit	Population Change	Ambient Water Quality	Permit Limit Discharges	Ag Runoff Potential	Sediment Potential	Wetlands Losses	Hydro-Mod Impacts	Use Restrictions	DW Use Restrictions	Cumulative Score	Average Score	UWA Category
Fort Randall Reservoir	10140101	4	4	4	2	5	4	5	1	7	36	4	I
Lewis and Clark Lake	10170101	4	4	8	5	5	4	5	1	3	39	4.33	I

Rating Criteria

Numeric Rating	Criteria for Numeric Rating Assignment	Unified Watershed Assessment Categories
0	Insufficient Data →	Category IV
1	Sensitive Aquatic/Prestine Waters →	Category III
2	Waterbodies meet all WQ Goals or Designated Uses →	Category II
3	Low impairment levels identified →	Category I
4	Moderately high impairment levels identified	
5	High impairment levels identified	
6	Threat to aquatic organisims or WQ goals	
7	Threat to public health - water contact	
8	Threat to public health - indegistion	
9	Threat to public health - water supply	

UNIFIED WATERSHED ASSESSMENT CATEGORY: I

HUC #: 10140101 HUC NAME: Fort Randall Reservoir



SQUARE MILES: 4,427

303(d) LIST DATA

Total		Lakes		Streams	
Count	8	Total TMDL Acres:	8,576	Total TMDL Miles	15.2
# of Priority 1:	2	Priority 1 Acres	3,600	Priority 1 Miles	15.2
# of Priority 2:	3	Priority 2 Acres:	4,674	Priority 2 Miles:	0.0
# of Priority 3:	3	Priority 3 Acres:	302	Priority 3 Miles:	0.0
[1]Total Density:	18.07	[2]Lake Density:	20,322	[3]Stream Density:	35.9
Priority 1 Density	4.52	Priority 1 Density:	8,531	Priority 1 Density:	35.9
Priority 2 Density:	6.78	Priority 2 Density:	11,076	Priority 2 Density:	0.0
Priority 3 Density:	6.78	Priority 3 Density:	716	Priority 3 Density:	0.0

LAND USE

Percent Land Use		Soil Loss - Tons/Acre
Cropland-cultivated:	26.9	2.3
Cropland-noncultivated:	7.5	0.5
Pastureland:	4.1	0.4
Rangeland:	43.0	1.6
Federal Land-Cover:	6.0	0.0
Forest Land:	0.4	0.0
Urban Small:	0.3	0.0
Rural Transportation:	2.0	0.0
Water Census Stream:	5.9	0.0
Water Small Stream:	0.3	0.0
Miscellaneous/minor:	3.7	9.0

Treatment Needs	Acres in 1,000's	[4]Density
Erosion Control:	465.7	16.44
Plant Reestablishment:	0.0	0.00
Forage Restablishment:	0.0	0.00
Forage Improvement:	46.3	1.63
Irrigation Management:	1.8	0.06
Toxic Salt Reduction:	0.0	0.00

Estimated Animal / Human Equivalents:

Number: 416,057 [5]Density: 94

Estimated Human Population/HU: 28,478

[6]# of Environmental Hazard Mines Rated >2: 0

[7]Density of Enviro. Hazard Mines Rated >2: 0.0

Number of Point Sources: 21

Point Source Density: 47

Counties Included in the Hydrologic Unit: Hyde, Stanley, Hughes, Lyman, Buffalo, Jones, Aurora, Brule, Tripp, Gregory, Charles Mix, Douglas

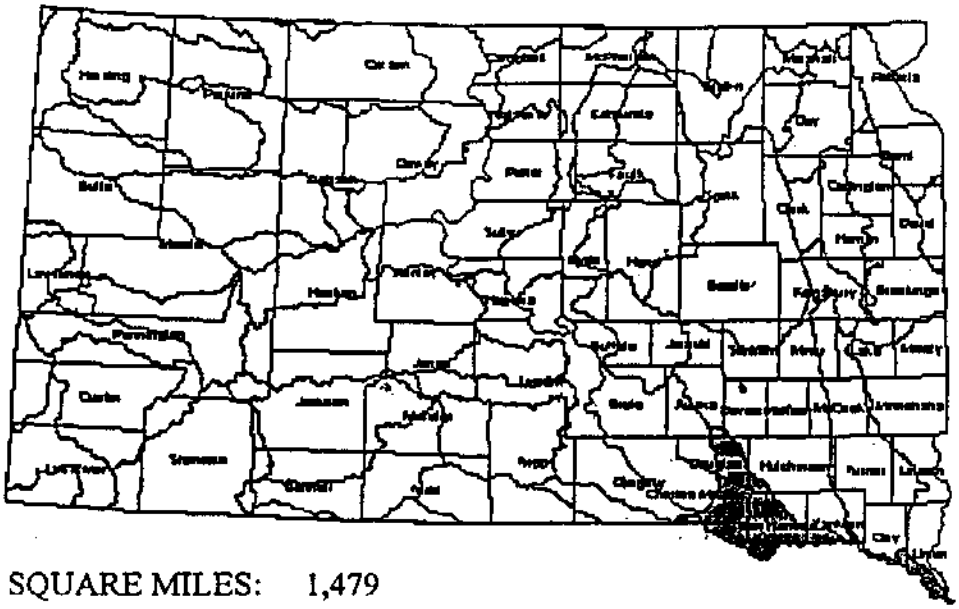
1) Number of TMDL's/HUC Area x 10,000 2) Surface Area /HUC Area x 10,000 3) Stream Length /HUC Area x 10,00

4) Acres of Treatment/HUC Area x 100 5) Number of Estimated Animal/Human Equivalents/HUC Area

6) Environmental Impact Rating from Potentially Significant to Extreme 7) Number of Mines/HUC Area x 1,000

UNIFIED WATERSHED ASSESSMENT CATEGORY: I

HUC #: 10170101 HUC NAME: Lewis and Clark Lake



SQUARE MILES: 1,479

303(d) LIST DATA

Total		Lakes		Streams	
Count	2	Total TMDL Acres:	129	Total TMDL Miles	0.0
# of Priority 1:	0	Priority 1 Acres	0	Priority 1 Miles	0.0
# of Priority 2:	2	Priority 2 Acres:	129	Priority 2 Miles:	0.0
# of Priority 3:	0	Priority 3 Acres:	0	Priority 3 Miles:	0.0
[1]Total Density:	13.52	[2]Lake Density:	915	[3]Stream Density:	0.0
Priority 1 Density	0.00	Priority 1 Density:	0	Priority 1 Density:	0.0
Priority 2 Density:	13.52	Priority 2 Density:	915	Priority 2 Density:	0.0
Priority 3 Density:	0.00	Priority 3 Density:	0	Priority 3 Density:	0.0

LAND USE

Percent Land Use		Soil Loss - Tons/Acre
Cropland-cultivated:	56.0	3.0
Cropland-noncultivated:	5.8	0.9
Pastureland:	6.4	0.3
Rangeland:	17.5	1.8
Federal Land-Cover:	1.0	0.0
Forest Land:	1.5	0.0
Urban Small:	2.1	0.0
Rural Transportation:	1.3	0.0
Water Census Stream:	3.2	0.0
Water Small Stream:	0.1	0.0
Miscellaneous/minor:	5.1	1.8

Treatment Needs	Acres in 1,000's	[4]Density
Erosion Control:	303.5	14.55
Plant Reestablishment:	0.0	0.00
Forage Restablishment:	0.0	0.00
Forage Improvement:	23.0	1.10
Irrigation Management:	1.1	0.05
Toxic Salt Reduction:	0.0	0.00

Estimated Animal / Human Equivalents:

Number: 473,532 [5]Density: 320

Estimated Human Population/HU: 19,705

[6]# of Environmental Hazard Mines Rated >2: 0

[7]Density of Enviro. Hazard Mines Rated >2: 0.0

Number of Point Sources: 19 **Point Source Density:** 128

Counties Included in the Hydrologic Unit: Aurora, Davison, Gregory, Charles Mix, Douglas, Hutchinson, Yankton, Bon Homme, Union, Clay

1) Number of TMDL's/HUC Area x 10,000 2) Surface Area /HUC Area x 10,000 3) Stream Length /HUC Area x 10,00

4) Acres of Treatment/HUC Area x 100 5) Number of Estimated Animal/Human Equivalents/HUC Area

6) Environmental Impact Rating from Potentially Significant to Extreme 7) Number of Mines/HUC Area x 1,000